Claims

1-14. (canceled)

15. (new) A method of measuring degradation in a tunable laser comprising the steps of:
   a. performing a first set of initial measurements on the laser to provide a reference set of measurements corresponding to a performance of the laser when no degradation has occurred;
   b. performing a second set of measurements on the laser where some degradation has occurred; and
   c. effecting a comparison of the first and second set of measurements so as to provide a measure of the degradation in the laser.

16. (new) The method of claim 15, wherein performing the first set of initial measurements comprises:
   d. setting a gain current of the laser to a specified predetermined value;
   e. setting tuning currents of the laser to zero;
   f. measuring an output power/etalon/wavelength of the laser while a current of one tuning section is increased and while currents in all other tuning sections are set to zero; and
   g. repeating steps (d) – (f) for all tuning sections of the laser.

17. (new) The method of claim 15, further comprising setting a gain current of the laser to a specified predetermined value, wherein the predetermined specified value of the gain current selected is an average gain current of operating points in a lookup table corresponding to the laser.

18. (new) The method of claim 15, wherein performing the second set of measurements comprises:
   d. setting a gain current of the laser to a specified predetermined value;
   e. setting tuning currents of the laser to zero;
   f. measuring an output power/etalon/wavelength of the laser while a current of one tuning section is increased and while currents in all other tuning sections are set to zero; and
   g. repeating steps (d) – (f) for all tuning sections of the laser.

19. (new)   The method of claim 15, wherein said comparison of the first set of measurements with the second set of measurements is carried out by comparing wavelength or etalon responses of the degradation of the device that are measured.

20. (new)   The method of claim 15, wherein positions of mode jumps in the two sets of measurements are compared and a transform is obtained and wherein mode jumps from the second set of measurements are transformed to the same currents as corresponding mode jumps determined from the first measurement.

21. (new)   The method of claim 20, further comprising the step of converting operating points of the tunable laser by said transform to obtain a new set of operating points, wherein the new set of operating points compensates for degradation in the laser.

22. (new)   The method of claim 15, wherein performing the second set of measurements comprises:
      locating a subset of mode jumps from the first measurement set; and
      re-measuring a region around each of the mode jumps in the same manner as the first set of measurements.

23. (new)   A computer readable medium having stored therein instructions for causing a processor to perform the method of claim 15.

24. (new)   The computer readable medium of claim 23, wherein the computer readable medium is a read only memory.

25. (new)   A method of compensating for a degradation of a laser diode comprising:
      monitoring transitions between two operating points of a laser while varying currents of a second of the two operating points;
      determining when a transition from a first wavelength to an operating point about the second does not correspond to a wavelength of the second operating point and then applying a fail status to this transition; and
      using a location of a nearest failed operating point about the second operating point to provide a vector of the degradation of the laser.

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26. (new)   The method of claim 25, wherein the vector obtained for the degradation of the device is used to adjust all the operating points of the laser to compensate for degradation in the laser.

27. (new)   A computer readable medium having stored therein instructions for causing a processor to perform the method of claim 25.
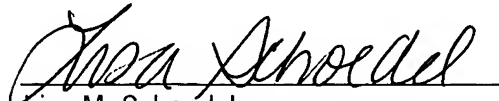
28. (new)   The computer readable medium of claim 27, wherein the computer readable medium is a read only memory.

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Respectfully Submitted,
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Date: April 26, 2006   By

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